

## Cementitious Polymer Modified, Silica Fume based Guniting Repair Mortar

**Guardian GSC** is a cementitious one component polymer modified, Silica Fume based guniting repair mortar that cures to provide a durable water resistant high strength material. It is for mechanical application by dry shot guniting and has excellent adhesion.

Complies to EN1504 part 9 and EN1504 part 3.

- Principle 3 : Concrete Restoration (CR).
- Method 3.3 – Spraying concrete or mortar.
- Principle 7 : Preserving or restoring passivity (RP).
- Method 7.1 – Increasing cover to reinforcement with additional concrete or mortar.
- Method 7.2 – Replacing contaminated or carbonated concrete.

## USES & ADVANTAGES

**Guardian GSC** is for mechanically applied concrete repair work by dry process guniting. The material is used for large repairs to reinforced concrete where there is corrosion to the reinforcement e.g. sea walls, bridge decks, piers, tunnels, viaducts, slab soffits, reservoirs sewers etc. The product is formulated to produce a high build, low rebound, fast strength gain repair which can be applied by standard spraying techniques.

### Advantages include:-

- Chloride free.
- Low drying shrinkage.
- Low rebound & high build.
- High early strength.
- Excellent adhesion to old concrete.
- One component ready to use.
- Limited dust formation.
- Greatly reduced water & carbon dioxide permeability.
- Contains fibres to reduce micro cracking.

## PROPERTIES

<b>Form :</b>	Powder
<b>Colour :</b>	Grey
<b>Compressive Strength :</b>	12-15 MPa @ 1 day ASTM C109 > 50 @ 28 days
<b>Adhesive strength :</b>	≥ 2 MPa dependent on substrate condition
<b>Drying shrinkage Modified 23°C/RH50% :</b>	ASTM C490 <350 micro strain @ 7 days <500 micro strain @ 28 days
<b>Fresh wet density :</b>	Approx. 2,100 kg/m <sup>3</sup> dependent on actual consistency used
<b>Min. application :</b>	5°C Temperature
<b>Consumption :</b>	Approx. 2.1 kg of Guniting/ltr or 2.1 kg of Guniting/sq.m./mm. thickness
<b>Chloride Ion Diffusion :</b>	Very low < 800 Coulombs
<b>Thermal Expansion :</b>	8 x 10 <sup>-6</sup> mm/°C

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### CE Requirements EN 1504-3 class R4

	Results in laboratory	Requirements R4
<b>Compressive strength:</b>	> 50 N/mm <sup>2</sup>	≥ 45 N/mm <sup>2</sup>
<b>Chloride ion Content:</b>	< 0.005 %	≤ 0.05 %
<b>Adhesion:</b>	2 N/mm <sup>2</sup>	≥ 2 N/mm <sup>2</sup>
<b>Carbonation Resistance:</b>	Lower than Control	dk ≤ control concrete
<b>Capillary Absorption:</b>	0.13 kg.m <sup>-2</sup> h <sup>-0.5</sup>	≤ 0.5 kg.m <sup>-2</sup> h <sup>-0.5</sup>

## APPLICATION INSTRUCTIONS

### SURFACE PREPARATION

Good surface preparation is essential to achieve adhesion. Saw cut to the extremities of the repair to a depth of at least 10 mm. to avoid feather edges providing a square edge. Cut out the complete area to a minimum depth of 10 mm. up to the sawn edge.

The surface must be clean & free of dust, unsound material, dirt, grease, paint, corrosion deposits, algae etc. Grit or grit/water blasting or scabbling is recommended.

Test surface preparation by pull off tests corroded steel in the repair area must be fully exposed, remove scale or corrosion deposits clean to a bright condition & ensure great attention is given to the back of the steel bars.

#### *Important Notes :*

Apply only to clean sound substrates.

Never apply to dry substrates.

Always ensure adequate curing of freshly placed guniting.

### PRIMING OF REINFORCEMENT

Apply one coat of **Guardian Zinc Primer** or **Guardian ST-E** & allow to dry before continuing. A second coat may be applied if doubt exists to the integrity of the first.

## APPLICATION

Just before application prewet & wash clean the substrate with water remove any free standing water before application. Pressurised air used for cleaning should be oil free.

Ensure all reinforcement is secure to avoid poor build, compaction & bond.

Apply using suitable guniting equipment & ensure good compaction around exposed rebar. The material may be built up in 9 mm. to 50 mm. sections in one pass.

If sagging occurs remove material.

In dry shot processes the nozzle man will determine the water content & therefore the quality of the material sprayed. A low W/C will result in too much dust a high one in slumping.

## FINISHING

Strike off with a straight edge & close with a steel float. Wooden or plastic floats may be used to achieve the desired texture.

## CURING

Suitable curing must be undertaken such as plastic sheet, wet Hessian, or a membrane such as **Guardian Acrylic** or **Guardian PU-ELASTIC**.

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### OVERCOATING WITH PROTECTIVE COATINGS

Remove any curing compounds before applying protective coatings. The repair material is highly durable, however, other areas will benefit from protection via the use of a protective coating. Use **Guardian Acrylic** or **Guardian ELASTOSHIELD** anti carbonation coating to produce a barrier limiting the advance of chlorides & carbon dioxide.

### CLEANING

**Guardian GSC** should be removed from tools, equipment and mixers with clean water immediately after use. Cured material can only be removed mechanically. Equipment used with **Guardian Zinc Primer** or **Guardian ST-E** should be cleaned with solvent.

### LIMITATION

**Guardian GSC** should not be used when the temperature is below 5°C and falling. Do not mix part bags. The product should not be exposed to moving water during application. Exposure to heavy rainfall prior to the final set may result in surface scour.

### STORAGE & SHELF LIFE

**Guardian GSC** has a shelf-life of up to 12 months in unopened packs kept in a dry store. If high humidity is apparent the life may be reduced to 6-8 months.

### PACKAGING

25 kg. 4 Ply plastic lined bags.

### HEALTH & SAFETY

**Guardian GSC** is non-toxic but is alkaline in its nature. When applying gloves & goggles should be worn. Wash off splashes to skin with water. If in eyes wash out with plenty of clean water and seek medical attention. **Guardian GSC** is non-flammable.

### TECHNICAL SERVICE

The Guardian Coating Service Department is available to assist you in the correct use of our products and its resources are at your disposal entirely without obligation.

### QUALITY ASSURANCE

ISO 9001: 2015 verified by TUV Nord.